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Promotion and protection of all human rights, civil, political, economic, social and cultural rights, including the right to development

Promotion, protection and enjoyment of human rights on the Internet: ways to bridge the gender digital divide from a human rights perspective

Report of the United Nations High Commissioner for Human Rights

Summary

The present report is submitted pursuant to Human Rights Council resolution 32/13, in which the Council requested the United Nations High Commissioner for Human Rights to prepare a report on ways to bridge the gender digital divide from a human rights perspective, and submit it to the Council at its thirty-fifth session.

In the report, the gender digital divide is considered as both a consequence and cause of human rights violations, some of the complex factors acting as barriers to women's online access and participation are outlined and the reasons why overcoming these barriers is important for women's human rights are discussed. The report also contains a set of proposed recommendations to ensure that information and communications technologies are accessible to women on an equal basis without discrimination, and to promote women's equal, effective and meaningful participation online.

I. Introduction

1. The present report is submitted pursuant to Human Rights Council resolution 32/13, in which the Council requested the United Nations High Commissioner for Human Rights to prepare a report on ways to bridge the gender digital divide from a human rights perspective.

2. Pursuant to paragraph 13 of resolution 32/13, the Office of the United Nations High Commissioner for Human Rights (OHCHR) sought contributions from States, the special procedures of the Human Rights Council, international organizations, national human rights institutions, civil society, industry, the technical community and academia and other stakeholders.[1] The report further draws on a diverse range of public sources.

II. Understanding the gender digital divide

A. Definitions

3. The term "digital divide" refers to the gap between individuals, households, businesses and geographic areas at different socioeconomic levels with regard to their opportunities to access information and communications technologies (ICTs) and to their use of the Internet for a wide variety of activities.[2] For the purposes of the present report, the "gender digital divide" refers to the measurable gap between women[3] and men in their access to, use of and ability to influence, contribute to and benefit from ICTs.[4]

[1] Contributions were received from: Albania, Australia, Azerbaijan, Canada, Chile, Colombia, Costa Rica, Cuba, Czechia, El Salvador, Georgia, Germany, Greece, Guatemala, Finland, Ireland, Italy, Kyrgyzstan, Liberia, Madagascar, Mali, Malta, Mexico, Montenegro, Nicaragua, Norway, Panama, Paraguay, Portugal, Qatar, Saudi Arabia, Slovenia, Sweden, Switzerland, Togo, Turkey, United Kingdom of Great Britain and Northern Ireland, Uruguay and Venezuela (Bolivarian Republic of); European Union Agency for Fundamental Rights, International Telecommunication Union (ITU), Committee on the Rights of the Child and United Nations Educational, Scientific and Cultural Organization (UNESCO); National Human Rights Commission of Mexico, Commission on Human Rights of the Philippines, Danish Institute for Human Rights, Defensoría del Pueblo of the Bolivarian Republic of Venezuela, Iranian Islamic Human Rights Commission, Office of the Provedor for Human Rights and Justice of Timor-Leste, National Commission for Human Rights of Rwanda, Slovak National Centre for Human Rights, Access Now, Anita Borg Institute for Women and Technology, Article 19, Association for Progressive Communications, Astraea Lesbian Foundation for Justice, Barbara Schwarze of the competence centre for technology, diversity and equal chances at the Fernfachhochschule Osnabrück, Centre of Governance and Human Rights Alfred's Voices Foundation at the University of Cambridge, Digital Leadership Institute, Digital Rights Foundation, Ericsson, Due Diligence Project, Every1Mobile, Feminism in India, Flavia Marzano — Councillor for Innovation of the City of Rome, GenARTalk, Global Fund for Women, Google, GSM Association, Hollaback!, IT for Change, Maria Sangiuliano — Department of Computer Sciences at La Trobe University, Mozilla Foundation, Netzhype, Plan International. Project Include, researchers at Carnegie Mellon University and the International Computer Science Institute, Shamia Ghosh — Department of Engineering at the University of Cambridge, Signal Program of the Harvard Humanitarian Initiative, Silicon Valley Robotics, Techfund, Tech Ladies, the Hacktivist Project, the Human Rights, Big Data and Technology Project at the University of Essex, Internet Society, Together for Girls, Turkey Blocks, Twitter, The Womanity Foundation, World Pulse, World Wide Web Foundation and YTH. All contributions are available at www.ohchr.org/EN/Issues/Women/WRGS/Pages/WaystoBridgetheGenderDigitalDivide.aspx.

[2] Organisation for Economic Cooperation and Development, *Understanding the Digital Divide* (2001), p. 5. See also A/HRC/17/27, para. 61 and A/HRC/32/37, paras. 51–63.

[3] All references to "women" in the present report should be construed as including girls and anyone identifying as a woman.

[4] The gender digital divide has also been described as a gender-driven imbalance in access to ICTs, general ICT literacy and presence in science, technology, engineering and mathematics studies (see ITU, "The gender digital inclusion map: research methodology" (2016)).

III. Gender disparities in access to and use of information and communications technologies

4. ICTs, including the Internet, are increasingly influential across all aspects of life. However, while in many contexts ICTs have boosted growth and expanded opportunities, their impact is unevenly distributed.[5] Today, despite widespread increases in basic Internet availability, only 47 per cent of the world's population is connected.[6] The offline population is disproportionately poor, rural, older and female, and the gap between them and those who have access to the Internet is widening steadily.

5. Internet uptake has come about unequally and at differing speeds, exacerbating inequalities between many groups, notably between women and men. Worldwide it is estimated that approximately 250 million fewer women than men are online.[7] According to recent figures, the global Internet user gender gap expanded from 11 per cent in 2013 to 12 per cent in 2016. While Internet penetration rates are higher for men than women in all regions, the gender gap is lowest in developed countries (2.0 per cent in 2016), significantly higher in developing countries (16.0 per cent in 2016) and highest in least developed countries (30.9 per cent in 2016).[8] It is most pronounced in Africa, the Arab States and the Asia-Pacific region.[9]

6. However, Internet penetration rates are only one component of the gender digital divide. While Internet connectivity continues to be an economic and infrastructural challenge, there are other inequalities in Internet usage patterns, skills and benefits. Research reveals that women are much less likely than men in the same age group and at similar education and income levels to use the Internet.[10] In one report, covering 10 countries, it was noted that once online, women are between 30 and 50 per cent less likely than men to use the Internet for economic and political empowerment.[11]

7. Women are also left behind by the rapid growth in mobile telephone ownership, currently the most prevalent means of access to the Internet in developing countries.[12] Worldwide, women are, on average, 14 per cent less likely than men to own a mobile telephone.[13] When they own mobile telephones, women are less likely than men to utilize mobile data, social media applications or SMS services.[14]

8. Information received reveals wide discrepancies among States in women's access to and use of ICTs. However, the availability of sex- and gender-disaggregated data in this

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[5] According to a 2013 report, bringing an additional 600 million women and girls online would result in a global gross domestic product increase of up to $18 billion (see Broadband Commission, *Doubling Digital Opportunities: Enhancing the Inclusion of Women & Girls in the Information Society* (ITU and UNESCO, 2013)). Other studies call into question the productivity gains said to be brought by the Internet (see, for example, World Bank, *World Development Report 2016: Digital Dividends* (2016), pp. xxiv and 2).

[6] ITU, Facts and Figures 2016, fourth page.

[7] Isabel Neuhaus, "Connecting the unconnected: working together to achieve Connect 2020 Agenda targets", background paper to the special session of the Broadband Commission and the World Economic Forum at the Davos Annual Meeting 2017, p. 7.

[8] ITU, Facts and Figures 2016, third page. For national statistical data, see inputs received from States, available at www.ohchr.org/EN/Issues/Women/WRGS/Pages/BridgetheGenderDigital.aspx.

[9] The Economist Intelligence Unit, "The inclusive Internet index: bridging digital divides" (2017), pp. 3 and 13.

[10] Neuhaus, "Connecting the unconnected", p. 7.

[11] See World Wide Web Foundation, http://webfoundation.org/about/research/womens-rights-online-2015/. See further *Women's Rights Online: Translating Access into Empowerment* (2015), pp. 13 and 24.

[12] GSMA, *Mobile Gender Gap Report 2016*, pp. 167–179. See also International Committee of the Red Cross, The Engine Room and Block Party, *Humanitarian Futures for Messaging Apps* (2017), p. 26.

[13] GSMA, *Connected Women 2015: Bridging the Gender Gap — Mobile Access and Usage in Low- and Middle-Income Countries*, p. 6. See also inputs from the Signal Program on Human Security and Technology, Harvard Humanitarian Initiative on the gender divide in mobile telephone ownership among refugees in Greece.

[14] GSMA, *Connected Women 2015*, pp. 20–30.

domain is limited. Consequently, there is a clear need for all States to systematically collect sex- and gender-disaggregated data to expose differences in ICT access and use and to support policymakers in finding the most appropriate responses to closing the gender digital divide.[15]

C. Drivers of the gender digital divide

9. The gender digital divide is a multidimensional phenomenon that includes issues regarding access to equipment (hardware), solutions (software or applications), connectivity and data, as well as the digital skills, knowledge and opportunities necessary to develop, benefit from and make meaningful and strategic use of ICTs.

10. Barriers faced by women in accessing ICTs, and that may limit their participation in digital life, are exacerbated by offline inequalities. Women already discriminated against or marginalized because of their sex and gender, in addition to other factors, such as race, ethnicity, religion or belief, health, status, age, class, caste and sexual orientation and gender identity,[16] are least likely to access, use and benefit from ICTs. Furthermore, they may face obstacles in accessing and using ICTs in a way that is meaningful, relevant and beneficial to them in their daily lives.[17]

11. Factors influencing, preventing or inhibiting women's access and use of ICTs may include:[18]

(a) Availability: for example, the status and degree of infrastructural roll-out, barriers to broadband access and limitations on women accessing public Internet places;

(b) Affordability: with more limited financial resources, women are disproportionately affected;[19]

(c) Sociocultural barriers: for example, time, mobility and gender roles, norms and stereotypes;

(d) Legislation, policies or practices: for example, regulation of the licensing of ICTs, subscription services, discriminatory policies and practices that affect women;

(e) Education, capacity and skills development: for example, illiteracy and a lack of digital skills and confidence;

(f) Privacy, security, trust and safety risks: for example, online harassment and violence against women;

(g) Relevant content, applications and services: for example, a lack of content that speaks to women's diverse realities or that has perceived benefit, or censorship or restriction of gender-related content;[20]

(h) ICT development, policy and governance: for example, the absence of women in technology-related careers, in ICT leadership positions and in key Internet governance decision-making structures.[21]

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[15] ITU, *Measuring the Information Society*, p. 203. See also Broadband Commission Working Group on the Digital Gender Divide, *Recommendations for Action: Bridging the Gender Gap in Internet and Broadband Access and Use* (2017), p. 18.

[16] Committee on the Elimination of Discrimination against Women, general recommendation No. 28 (2010) on the core obligations of States parties under article 2 of the Convention, para. 18.

[17] Paul DiMaggio and others, "From unequal access to differential use: a literature review and agenda for research on digital inequality" (2001).

[18] For a fuller exploration of some of these factors, see World Wide Web Foundation, *Women's Rights Online*, pp. 18-23.

[19] See, for example, Alliance for Affordable Internet, *Affordability Report 2015/16*, pp. 32-33.

[20] See A/HRC/17/27, paras. 29-32 and ITU, *Measuring the Information Society*, chap. 6.

[21] See A/HRC/32/38, para. 80. See also Avri Doria, "Internet governance and gender issues", in Association for Progressive Communications, *Critically Absent: Women's Rights in Internet Governance* (2012).

III. A human rights framework for bridging the gender digital divide

A. Applying a human rights-based approach

12. In its resolution 32/13, the Human Rights Council affirmed the importance of applying a comprehensive human rights-based approach in providing and expanding access to the Internet, while calling on all States to make efforts to bridge the many forms of digital divides, and in particular the gender digital divide. The Council called on States to enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of all women and girls. The Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression has stated that, without Internet access, which facilitates economic development and the enjoyment of a range of human rights, marginalized groups may remain trapped in a disadvantaged situation, thereby perpetuating inequality;[22] such groups may include women.

13. A systematic approach to embedding human rights in efforts to tackle the gender digital divide requires addressing the full range of women's human rights that are affected by ICTs. It should also take into account the underlying context in which women live, which involves multiple and intersecting barriers to the exercise of their human rights. Inhibitors to ICT access and use by women should be addressed as part of the State's obligation to respect, protect and fulfil all human rights. This includes establishing and maintaining an enabling online environment that is safe and conducive to engagement by all, without discrimination and with special attention to the needs of groups facing systemic inequalities, in particular women within these groups. As affirmed in successive Human Rights Council resolutions and General Assembly resolution 71/199, the same rights that people have offline must also be protected online.[23]

14. A human rights-based approach applies human rights norms and standards to relevant policies and programmes. This includes establishing and maintaining key principles such as accountability, equality and non-discrimination, participation, transparency, empowerment and sustainability.[24] Additionally, an Internet governance structure premised on human rights should ensure that individuals can challenge violations of their rights and that remedies are accessible and effective.[25]

15. States have an obligation to protect persons within their jurisdiction from undue interference with their human rights by third parties,[26] including business enterprises. Business enterprises, including those active in the ICT sector, have a responsibility to respect human rights. In accordance with the Guiding Principles on Business and Human Rights, enterprises should avoid infringing on human rights and should identify, prevent, mitigate and account for any adverse impact on human rights that they cause, contribute to or are directly linked to.[27]

16. The Sustainable Development Goals offer an important tool for reinforcing the existing human rights obligations of States to bridge the gender digital divide.[28] States have committed to strive for universal and affordable access to the Internet in least developed countries by 2020 (target 9 (c) of the Goals), as well as to ensure that women and men have equal access to basic services, including new technology, by 2030 (target 1.4). They have also pledged to enhance the use of enabling technology, in particular ICTs, to promote the

[22] See A/HRC/17/27, para. 62.

[23] See Council resolutions 20/8 and 26/13.

[24] See A/HRC/14/39, para. 32, and OHCHR, *A Human Rights-Based Approach to Data: Leaving No One Behind in the 2030 Development Agenda* (2016).

[25] See A/HRC/27/37, paras. 40-41.

[26] See Human Rights Committee, general comment No. 31 (2004) on the nature of the general legal obligation imposed on States parties to the Covenant, para. 8.

[27] A/HRC/17/31, annex. See also Human Rights Council resolution 17/4.

[28] See General Assembly resolution 70/1, para. 15. See also ITU, Action Plan to Close the Digital Gender Gap (2015), second page.

empowerment of women (target 5 (b)).[16] Furthermore, expanding equal access to ICTs is supportive of many other Sustainable Development Goals, including those related to education, health, jobs and economic growth, innovation and infrastructure, and sustainable cities and communities.

B. Human rights implications of the gender digital divide

17. The gender digital divide is both a consequence and cause of violations of women's human rights. It is a consequence, in that disparities in ICT access and use reflect discrimination faced by women in society, be it based on location, economic status, age, gender, racial or ethnic origin, social and cultural norms, education or other factors. The gender digital divide is also a cause of violations of women's human rights: women without meaningful ICT access are less equipped to exercise their human rights and to participate in public life, the economy and society.[17] The role of Internet access in the enjoyment of human rights has been stressed in numerous reports by the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression.[18] At the same time, when women access or use ICTs, they may be exposed to potential violations of human rights, which in turn may deter them from using ICTs and effectively limit their access, serving to exacerbate the gender digital divide.

Right to privacy

18. The General Assembly, the United Nations High Commissioner for Human Rights and several special rapporteurs have recognized that privacy is a prerequisite for the full exercise of other rights, notably the right to freedom of opinion and expression.[19] Women's right to privacy in the context of equal access to ICTs implies the ability to benefit from encryption, anonymity or the use of pseudonyms on social media in order to minimize the risk of interference with privacy, which is especially pertinent for women human rights defenders and women trying to obtain information otherwise considered taboo in their societies.[20]

19. At the same time, the use of ICTs could result in arbitrary or unlawful interference in women's privacy, for example through surveillance and monitoring of women's correspondence and activities, or in targeted attacks on women's privacy through the publication of personal data and information on the Internet ("doxing"). Big data[21] also poses particular challenges to women's right to privacy, for example during the collection, storage, sharing and repurposing of large sets of data, which may involve the potential for re-identification, de-anonymization and aggregation of information.[22] Of particular concern is the potential danger posed to the privacy of marginalized women when big data is used for development or humanitarian purposes. While big data may carry benefits for development initiatives, it also carries serious risks, which are often ignored.[23]

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[16] The global indicator framework agreed by the Statistical Commission in 2016 includes "Proportion of individuals who own a mobile telephone, by sex" to monitor Sustainable Development Goal 5.

[17] See, in this connection, A/HRC/30/26, para. 13 and A/HRC/17/27, paras. 60-66. See also Association for Progressive Communications, "How technology issues impact women's rights: 10 points on Section J" (2015).

[18] See A/HRC/17/27, paras. 60-66; A/HRC/29/32; A/HRC/32/38; A/HRC/14/23, paras. 111-112.

[19] General Assembly resolution 68/167; A/HRC/13/37; A/HRC/29/32. See also Human Rights Council resolution 20/8.

[20] See A/HRC/23/40 and Corr.1, para. 23.

[21] See Global Pulse, *Integrating Big Data into the Monitoring and Evaluation of Development Programmes*, pp. 34-35.

[22] Nicole Shephard, "Big data and sexual surveillance", Association for Progressive Communications issue paper (2016).

[23] See, generally, Global Pulse (2016), "Big data for development and humanitarian action: towards responsible governance — Global Pulse privacy advisory group meetings 2015-2016" (2016).

Rights to freedom of opinion and expression and freedom of peaceful assembly and of association

20. The Internet is a key means by which individuals can exercise the right to freedom of opinion and expression.[37] This right includes the freedom to seek, receive and impart information and ideas of all kinds, regardless of frontiers and through any media.[38] In particular, the Internet has become crucial for the provision of, and access to, information and in the formation of political communities and associated questions of participation.[39] For example, the Special Rapporteur in the field of cultural rights stated that ICTs, including the Internet, were especially important for accessing information, establishing and developing contacts with persons with similar views beyond primary communities, expressing oneself and contributing one's own knowledge and ideas.[40]

21. Further, the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression has noted that States have a positive obligation to promote or to facilitate the enjoyment of the right to freedom of expression and the means necessary to exercise this right, including the Internet. States should adopt effective and concrete policies and strategies — developed in consultation with individuals from all segments of society, including the private sector as well as relevant government ministries — to make the Internet widely available, accessible and affordable to all.[41]

22. Several aspects of the exercise of the right to freedom of opinion and expression online are of particular importance for the realization of women's human rights. The Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression has noted that when women are denied the full exercise of this right, they are also limited in the exercise of other fundamental rights, such as the rights to development, education, health, political participation and a life free from violence.[42] The Internet may be a significant and, at times, even the only way for women to access information and express their views on issues that concern them and their life choices, which they may otherwise not be able to, owing to, among other things, harmful gender stereotypes, social norms and taboos. This may include information on gender equality and women's rights and on sexual and reproductive health and rights.

23. Women activists, including women human rights defenders, increasingly rely on ICTs to advocate, communicate, mobilize, protect, access information and gain visibility. Yet, at the same time, ICTs may broaden the kinds of surveillance, censorship and harassment to which they may be subjected.[43] The Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression has noted a disproportionate impact of online surveillance on the freedom of expression of a range of groups, such as lesbian, gay, bisexual and transgender individuals, civil society, human rights defenders, journalists and victims of violence and abuse; women within those groups face gender-specific risks and threats.[44] The Special Rapporteur on the situation of human rights defenders observed that women human rights defenders had been subjected to new online forms of violence, such as threats, including death threats, and that such threats could be delivered via telephones, text messages or e-mails.[45] The Special Rapporteur also drew attention to cases in which human rights defenders had been charged with defamation and, in some cases, blasphemy, because they had published online articles, blog entries or tweets.[46] Further, the Special Rapporteur has emphasized the need for gender-sensitive protection measures and stated that the physical safety of human rights defenders should be

[37] See A/HRC/17/27, para. 20.

[38] International Covenant on Civil and Political Rights, art. 19 (2). See also Human Rights Committee general comment No. 34 (2011) on the freedoms of opinion and expression, para. 18.

[39] See A/HRC/17/27, paras. 2 and 19; A/HRC/23/50, para. 15.

[40] See A/67/287, para. 32.

[41] See A/HRC/17/27, para. 66.

[42] See A/HRC/14/23, para. 112; see also A/HRC/17/27, para. 62.

[43] Front Line Defenders, "Living under digital surveillance: human rights defender perceptions and experiences" (2016).

[44] See A/HRC/32/38, para. 57.

[45] See A/HRC/16/44 and Corr.1, para. 56.

[46] See A/67/292, para. 56.

interlinked and integrated into their digital security.[47] In addition, as many women human rights defenders still struggle to gain access to online spaces, the need to share devices, use cybercafes and rely on legacy or "dumb" mobile telephones may impair their right to freedom of opinion and expression and further contribute to their digital insecurity.[48]

24. The rights to freedom of peaceful assembly and of association are crucial for enabling the exercise of many other civil, cultural, economic, political and social rights. States have been called on to recognize that the rights to freedom of peaceful assembly and of association can be exercised through new technologies, including through the Internet.[49] The Internet allows women activists to connect and exchange strategies, including across borders, and offers a space for organizing, although it may also render women vulnerable to digital threats.

Right to work and to the enjoyment of just and favourable conditions of work

25. The right to work is essential for realizing other human rights.[50] However, women are at risk of losing out in the workplace due to a lack of digital skills. They are underrepresented in many ICT companies and ICT-related roles, with some statistics showing as few as 23 per cent female employees, and the percentage is even lower for women in leadership positions or technical roles.[51] This is likely to perpetuate a low participation of women in digitization processes.[52] Information received describes how some States, business enterprises and others are adopting proactive measures to bridge the gender gap in the digital labour market by promoting education, training and employment opportunities for women in science and technology-related areas.[53]

26. ICTs can help to improve women's working conditions by reducing labour time and facilitating flexible working arrangements.[54] They can also assist women workers, especially household, domestic or migrant workers, in claiming their labour rights by providing access to online information, as well as offer opportunities to organize online to improve laws, wages and working conditions and report abuses.[55] Technological innovations are also being leveraged to help track and interrupt human trafficking and forced labour in supply chains.[56] Furthermore, evidence shows that migrant workers who are isolated from technology and social networks are more vulnerable to human trafficking and exploitation.[57]

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[47] See A/HRC/31/55, paras. 39, 44 and 48.

[48] See Association for Progressive Communications/Connect Your Rights!, "What are the digital security concerns and threats facing women human rights defenders?" (2012). See also Association for Women's Rights in Development, "Our right to safety: women human rights defenders' holistic approach to protection", p. 19.

[49] See A/HRC/20/27, para. 84 (k).

[50] See Committee on Economic, Social and Cultural Rights, general comment No. 18 (2005) on the right to work, para. 1.

[51] See A/HRC/26/39, para. 58. See also World Economic Forum, *The Industry Gender Gap: Women and Work in the Fourth Industrial Revolution* (2016) and European Commission, *Women Active in the ICT Sector* (2013).

[52] Input from Sweden, p. 3.

[53] See inputs received for the report.

[54] See, for example, Committee on the Elimination of Discrimination against Women, general recommendation No. 34 (2016) on the rights of rural women, paras. 73-74.

[55] Leith Dunn and Hopeton Dunn, "Women's rights, gender and ICTs: empowering household workers in Jamaica", in Association for Progressive Communications and Humanist Institute for Cooperation with Developing Countries, *Global Information Society Watch* (2013). Available from www.giswatch.org/sites/default/files/jamaica_gisw13.pdf.

[56] Samir Goswami, "Technology to address human trafficking & forced labour in supply chains" (Issara Institute, 2016). Available from www.projectissara.org/publications.

[57] Mark Latonero and others, *Technology and Labor Trafficking in a Network Society* (University of Southern California Annenberg, Center for Communication Leadership & Policy, 2015). In the EU Strategy towards the Eradication of Trafficking in Human Beings 2012-2016, it is stated that the European Commission will use the Internet and social networks to target awareness-raising for key groups of concern, including women and children at risk and domestic workers.

Right to health

27. The right to health requires equal access for women and men to health-care services, as well as ensured access to services required only by women.[58] Sexual and reproductive health constitutes a key aspect of women's right to health and is related to other human rights, including the rights to life, liberty and security of person and freedom from torture, as well as the rights to privacy, education and the prohibition of discrimination.[59] The right to health includes the ability for women to make decisions about their health, such as deciding freely and responsibly on the number and spacing of their children, and to have access to the information, education and means to exercise this right.[60] ICTs can offer access to websites and resources that enable women to make more informed decisions about their sexual and reproductive health, while respecting confidentiality and eliminating stigma-related barriers.[61]

28. The adoption of e-health and m-health (mobile) can lead to more cost-effective and inclusive access to health care, while data analytics and artificial intelligence can help identify appropriate treatments and facilitate early diagnosis and intervention.[62] There is thus significant potential to harness ICTs for women's health. The development of e-health and m-health pose some important challenges, however, including information censorship, misinformation, the protection of data privacy and the limits of one-way health information.[63] Furthermore, much of the health-related information available online focuses on motherhood and childbirth, with less attention paid to topics such as safe abortion and contraception within the framework of sexual and reproductive health and rights.[64]

Right to education and to participate in cultural life

29. ICTs can provide increased access to affordable and inclusive educational opportunities for women, with the ability of digital devices to multiply learning pathways and diversify learning approaches. The Committee on the Rights of the Child has described how the Internet can provide education for children through mobile school programmes.[65] The Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression has also highlighted some of the educational advantages derived from Internet usage and how those can directly contribute to human capital.[66] The Special Rapporteur on the right to education has noted, however, that while the provision of education through digital technology can have important benefits, special attention must be paid to questions of skills and access, including for women, to avoid contributing to gender disparities.[67]

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[58] See Convention on the Elimination of All Forms of Discrimination against Women, art. 12; Committee on the Elimination of Discrimination against Women, general recommendation No. 24 (1999) on women and health; Committee on Economic, Social and Cultural Rights, general comment No. 14 (2000) on the right to the highest attainable standard of health.

[59] Committee on Economic, Social and Cultural Rights, general comment No. 22 (2016) on the right to sexual and reproductive health; see also A/61/338.

[60] See Convention on the Elimination of All Forms of Discrimination against Women, arts. 10 and 16.

[61] Examples include the Mobile Alliance for Maternal Action (see www.mobilemamaalliance.org/), TriGivia (see http://esaro.unfpa.org/news/creating-youth-app-sexual-health#sthash.zSNKrA5G.dpuf), Text4baby (see www.text4baby.org/), Team GetIN (see www.unfpa.org/news/new-mobile-app-brings-digital-revolution-adolescent-maternal-care-uganda#sthash.KQ0U8Adn.dpuf) and the Ibis Reproductive Health website (www.medicationabortion.com). See also input from Maya Apa.

[62] World Health Organization and ITU, *E-Health and Innovation in Women's and Children's Health: A Baseline Review* (2014).

[63] Association for Progressive Communications, "Internet governance issues on sexuality and women's rights" (2010).

[64] L. Waldman and M. Stevens, "Sexual and reproductive health rights and information and communications technologies: a policy review and case study from South Africa", Institute of Development Studies Evidence Report No. 113 (2015).

[65] General comment No. 11 (2009) on indigenous children and their rights under the Convention, para. 61.

[66] See A/69/335, para. 66; A/HRC/17/27, para. 62.

[67] See A/HRC/32/37, paras. 40-41.

30. With the Internet emerging as a critical platform for scientific and cultural flows and exchanges, freedom of access to the Internet and maintaining its open architecture are important for upholding the right to participate in cultural life and to enjoy the benefits of scientific progress and its applications.[68] The Internet can facilitate women's access to, and participation in, science and culture, providing opportunities for women to express themselves and to present alternative narratives and meanings and making it easier for them to freely engage with people, ideas and events across cultural and national boundaries. Consequently, lack of access to online spaces by women can affect their right to participate in cultural life on an equal basis, and bridging the digital divide is necessary to fully realize this right, as noted by the Special Rapporteur in the field of cultural rights.[69]

Rights of women with disabilities

31. Improved access to ICTs can help persons with disabilities to live more autonomously and independently and enable and accelerate their social, economic and political inclusion. It can facilitate access to education, information, independent methods of communication, health services and employment opportunities.[70] However, persons with disabilities, and particularly women with disabilities, are significantly less likely to have access to the Internet and ICTs.

32. Under articles 9 and 21 of the Convention on the Rights of Persons with Disabilities, States parties are required to take appropriate measures to ensure that persons with disabilities can access ICTs and exercise the right to freedom of expression and opinion, and access to information, on an equal basis with others and through all forms of communication of their choice.[71] States parties are also to urge providers of information and services through the Internet, including private entities, to make their services accessible to persons with disabilities. The Committee on the Rights of Persons with Disabilities has stated that the lack of consideration given to gender and/or disability aspects in policies relating to, among other things, information and communications technologies and systems prevents women with disabilities from living independently and participating fully in all areas of life on an equal basis with others.[72] The Committee has further expressed concern that if women with disabilities are subjected to violence, exploitation or abuse, particularly in situations of risk and humanitarian emergencies, information and communication helplines and hotlines may not be accessible to them due to their lack of access to ICTs.[73]

Rights of the child, particularly girls

33. The Committee on the Rights of the Child has highlighted the importance of digital technology in children's lives and exhorted States parties to protect and promote the rights of the child in this regard, without distinction between boys and girls.[74] The Committee held a day of general discussion in 2014 on digital media and children's rights. While enumerating some of the positive opportunities presented by ICTs for children's empowerment and engagement, participants drew attention to the digital divide, especially for children in marginalized and vulnerable situations, and highlighted that children, particularly girls, faced new forms of human rights abuses enabled by ICTs, including sexual exploitation and the distribution of child sex abuse images. The Committee recommended that States should recognize the importance of access to, and use of, digital media and ICTs for children and their potential to promote all children's rights and should adopt and effectively implement comprehensive human rights-based laws and policies that incorporate children's access to digital media and ICTs and ensure the full protection under

[68] See A/HRC/20/26, para. 36; A/HRC/23/34, para. 39; International Covenant on Economic, Social and Cultural Rights, article 15 (1) (a) and (b).

[69] See A/HRC/17/38/Add.1, para. 61; see also A/67/287, paras. 31-32.

[70] Broadband Commission for Digital Development and others, joint report, *The ICT Opportunity for a Disability-Inclusive Development Framework* (2013).

[71] See also Committee on the Rights of Persons with Disabilities, general comment No. 2 (2014) on accessibility.

[72] General comment No. 3 (2016) on women and girls with disabilities, para. 48.

[73] Ibid., para. 50.

[74] General comment No. 20 (2016) on the implementation of the rights of the child during adolescence.

the Convention on the Rights of the Child and the Optional Protocols thereto with regard to the use of digital media and ICTs.[75]

C. Online violence against women

34. While the use of ICTs has contributed to the empowerment of women and to a fuller realization of their human rights, it has also facilitated the development of online violence against women.[76] In article 1 of the Declaration on the Elimination of Violence against Women, violence against women is defined as any act of gender-based violence that results in, or is likely to result in, physical, sexual or psychological harm or suffering to women, including threats of such acts.[77] The General Assembly acknowledged in its resolution 68/181 that information-technology-related violations, abuses and violence against women were a growing concern and could be a manifestation of systemic gender-based discrimination, requiring effective responses compliant with human rights.

35. Online violence against women encompasses acts of gender-based violence that are committed, facilitated or aggravated by the use of ICTs, including online threats and harassment and gross and demeaning breaches of privacy, such as "revenge pornography".[78] Online violence has risen sharply over the past few years,[79] and can result in women limiting their participation on online platforms.[80]

36. Specific groups of women, in particular young women,[81] women belonging to ethnic minorities and indigenous women,[82] lesbian, bisexual and transgender women,[83] women with disabilities and women from marginalized groups may be at greater risk and may experience particularly severe forms of online violence. Women human rights defenders, journalists,[84] bloggers[85] and those critiquing sexist media practices online may also face particular harassment or threats online, such as interference with Internet services, computer confiscation, virus and spyware attacks and online defamation campaigns aimed at discrediting them or inciting other abuses against them.[86]

37. States have obligations to combat online violence against women while safeguarding the freedom of opinion and expression and the realization of other rights, such as the right to access information about sexual and reproductive health and rights.[87] Business enterprises have similar responsibilities. Actions to be taken to protect women against acts of online violence should be preventive, such as education campaigns or the provision of technical features enabling users to block content,[88] and reactive, such as the urgent

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[75] See the report of the Committee on the Rights of the Child on the day of general discussion, paras. 85-86, available at www.ohchr.org/Documents/HRBodies/CRC/Discussions/2014/DGD_report.pdf. See also Human Rights Council resolution 31/7; A/HRC/31/58, para. 54; A/69/335, paras. 65-78.

[76] See A/HRC/32/42 and Corr.1, para. 70.

[77] See also Committee on the Elimination of Discrimination against Women, general recommendation No. 19 (1992) on violence against women, para. 6.

[78] See A/HRC/23/50, para. 66.

[79] See www.pewinternet.org/2014/10/22/online-harassment/.

[80] "UN experts urge States and companies to address online gender-based abuse but warn against censorship", press release dated 8 March 2017. See also Software Freedom Law Centre, India (2016), "Online harassment: a form of censorship".

[81] See A/HRC/29/27/Add.2, para. 23.

[82] Jane Bailey and Sara Shayan, "Missing and murdered indigenous women crisis: technological dimensions", *Canadian Journal of Women and the Law*, vol. 28, No. 2 (2016).

[83] Witness Media Lab, *Capturing Hate: Eyewitness Videos Provide New Source of Data on Prevalence of Transphobic Violence* (2016).

[84] A 2014 study of Twitter in the United Kingdom found that female journalists were one of the categories most likely to suffer attacks (see www.demos.co.uk/files/Demos_twittercelebrities_data.xlsx).

[85] OSCE, *New Challenges to Freedom of Expression: Countering Online Abuse of Female Journalists* (2016), p. 5.

[86] For example, the 2015 online attacks targeting #TakeBackTheTech and #ImagineAFeministInternet hashtags (see www.apc.org/en/pubs/take-action-takebackthetech-and-imagineafeministin).

[87] See, for example, E/2013/27-E/CN.6/2013/11, para. 34 (ww).

[88] See A/HRC/32/38, para. 52.

removal of unlawful content, investigation and action against perpetrators, and the provision of redress and reparation to victims. Any such measures should comply with international human rights norms and standards; in particular, no action may amount to undue restrictions on freedom of expression.[89]

38. Inputs received from some States for the report outlined measures implemented to combat online violence against women, including education, legislation, preventive actions, reporting mechanisms and various other initiatives.[90] A number of States have examined how they can use or clarify existing laws to address online violence against women, while others have adopted laws specifically addressing online violence, often in a gender-neutral manner.[91] However, reports indicate that in many States, law enforcement agencies and courts are failing to take appropriate action in situations of online violence against women, or are using such laws as a pretext to restrict freedom of expression.[92]

39. Business enterprises have also begun to address this issue, for example by developing tools that allow users to block specific individuals, safeguard their privacy or tailor their interactions to protect themselves against abusive behaviour.[93] It is important that such tools comply with the requirements set out in article 19 (3) of the International Covenant on Civil and Political Rights regarding permissible restrictions on freedom of expression. Inputs to the report provided examples of community-led initiatives, including online victim support platforms and organizations offering digital security guidance and counselling.[94] Other examples of ICTs designed to prevent offline violence against women include mobile device-based safety applications, such as "panic buttons".[95] Other technology-based tools in this area include "data escrows" (third party data trusts) to facilitate confidential reporting of sexual assault.[96]

D. Emerging issues: data-driven technologies

40. The advent of big data and artificial intelligence may have an impact on women's rights and on the gender digital divide. Data-driven technologies may provide new opportunities to solve societal problems and perform a range of complex tasks in everyday life, but there is also a risk of increasing disparities for those who do not have access, and of reinforcing, or even amplifying, gender inequalities due to data gaps and bias. For example, while big data analytics may offer possibilities to make gender-based discrimination more visible and to quantify women's political, economic, social and health

[89] In accordance with article 19 (3) of the International Covenant on Civil and Political Rights, any restriction on the freedom of expression, to be legitimate, must be provided by law and necessary for the respect of the rights or reputations of others or for the protection of national security or of public order, or of public health or morals. Any restriction must be sufficiently precise to provide individuals with adequate guidance and publicly accessible, and must not confer upon authorities unfettered discretion for the restriction (Human Rights Committee, general comment No. 34, para. 25).

[90] See also GenderIT (2014), "End Violence Research Findings"; DLA-Piper, "Online harassment: a comparative policy analysis for Hollaback" (2016); *Internet Governance Forum 2015: Best Practice Forum on Online Abuse and Gender-Based Violence against Women* (2015).

[91] The European Agency for Fundamental Rights has raised the issue of whether current legislation on violence against women is well-suited to fight cyberstalking and cyberharassment (see *Violence against Women: An EU-wide Survey* (2014)).

[92] See Association for Progressive Communications, "From impunity to justice: domestic legal remedies for cases of technology-related violence against women" (2015); World Wide Web Foundation, *Web Index* (2014), chap. 4.2; Association for Progressive Communications, "Technology-related violence against women" (2015), pp. 3-4.

[93] See input by Twitter #PositionOfStrength programme. In February 2017, Google released a machine learning tool designed to flag "toxic comments" (see www.perspectiveapi.com/).

[94] See, for example, inputs by Digital Rights Foundation, Access Now and Hollaback! See also www.takebackthetech.net and https://tacticaltech.org/projects/security-box.

[95] See the Centre for Internet and Society and the Bachchao Project, "Evaluating safety buttons on mobile devices: technological interventions, personal safety, and women's agency" (2017). Amnesty International has developed a basic panic button application in an attempt to address privacy and security concerns (see www.panicbutton.io).

[96] See www.projectcallisto.org.

status,[97] there is also a risk that it may not pick up information about the diverse experiences of women, owing to underrepresentation or exclusion of particular groups online and a lack of reporting.[98]

41. Another widely shared concern is that of algorithmic discrimination and bias. Studies indicate that as the use of artificial intelligence systems becomes more pervasive, there may be disproportionate and disparate impacts on certain groups facing systemic inequalities, including women within those groups.[99] For example, researchers discovered evidence of gender-based discrimination in the targeting of job-related advertisements online, as well as underrepresentation of women in Internet search results for certain professions.[100] Further efforts should be focused on ensuring that data inputs are inclusive and accurate and that the operation of artificial intelligence is consistent with human rights; automated decision-making processes should be transparent and accountable for the analyses and decisions they deliver.[101]

42. A further emerging area is that of digital identity. In the 2030 Agenda for Sustainable Development, the role of robust identification systems and their importance to development was highlighted, specifically in target 16.9 of the Sustainable Development Goals, and such systems are key enablers in achieving many of the Goals.[102] However, nearly one fifth of the world's population lacks any form of officially recognized identification.[103] Women in developing countries are disproportionally affected, as they may face higher economic and social barriers to obtaining official identification. This lack of identification can prevent those women concerned from accessing a variety of rights, such as social protection, education and health care, and from exercising the right to vote. It can also prevent them from accessing economic opportunities, jobs and credit. New technology allows digital identification systems to establish identity for those who lack traditional paper documents. For example, an important impediment in the area of women's property and inheritance rights is the lack of proper identity documentation by which to establish a legal basis for claims.[104] Technologies such as blockchain can provide an authentication solution in the form of a unique, digital identifier, thereby helping to protect women's equal rights to land and property.[105] Digital identity and digital currencies also present an opportunity to increase financial inclusion, helping to address the situation whereby approximately 50 per cent of women around the world do not have access to

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[97] Data2X, "Big data and the well-being of women and girls: applications on the social science frontier" (2017). See also input from the Human Rights, Big Data and Technology Project, para. 17.

[98] Elaine Edwards, "Writer urges users of 'big data' to consider impact on women", *Irish Times*, 30 March 2017.

[99] Solon Barocas and Andrew D. Selbst, "Big data's disparate impact", *California Law Review*, vol. 104 (2016); Danah Boyd, Karen Levy and Alice Marwick, "The networked nature of algorithmic discrimination", in *Data and Discrimination: Collected Essays*, Seeta Peña Gangadharan, Virginia Eubanks and Solon Barocas, eds. (2014).

[100] See input received by the group of researchers at Carnegie Mellon University and the International Computer Science Institute. See also Will Knight, "How to fix Silicon Valley's sexist algorithms", *MIT Technology Review*, 23 November 2016.

[101] Joshua A. Kroll and others, "Accountable algorithms", *University of Pennsylvania Law Review*, vol. 165 (2017), p. 633; Corinne Cath and others, "Artificial intelligence and the 'good society': the US, EU and UK approach" (2016).

[102] The United Nations has created a task force focused on providing legal identity to all by 2020, which includes blockchain entrepreneurs, policymakers and non-governmental organizations (see id2020.org). See also Mariana Dahan and Alan Gelb, "The role of identification in the post-2015 development agenda" (Center for Global Development, 2015).

[103] World Bank, "Identification for development: strategic framework" (2016), p. 4.

[104] OHCHR and United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women), *Realizing Women's Rights to Land and Other Productive Resources* (2013), p. 38.

[105] Lucia Hanmer and Mariana Dahan, "Identification for development: its potential for empowering women and girls" blog dated 9 November 2015, available at http://blogs.worldbank.org/voices/identification-development-its-potential-empowering-women-and-girls; Centre for International Governance Innovation proposal for the Group of 20 to harness blockchain technology for women's empowerment and sustainable development, available at www.cigionline.org/sites/default/files/documents/PB%20no.101.pdf.

financial services.[46] However, without access to ICTs, women may not have the opportunity to benefit from these potentially powerful technological tools.[47]

IV. Conclusions and recommendations

44. Important gender disparities in access to and use of ICTs persist and hinder women's exercise of their human rights. Furthermore, violations of women's human rights online can exacerbate the gender digital divide. Without a determined effort to remedy this situation, there is a significant risk that technology will widen gender inequalities in society.

45. Human rights should serve as the framework for bridging the gender digital divide. International human rights norms and principles, especially equality, non-discrimination, inclusion, participation and the provision of effective remedies, should guide any action taken in response to issues of access, use and misuse of ICTs. While interest in addressing the gender digital divide appears to be growing, there seems to be insufficient attention paid to framing it as a human rights issue.

46. Gender equality should be promoted in the design and implementation of ICTs and in the policy decisions and frameworks that regulate them. It is critical for all stakeholders to invest in creating an enabling and empowering ICT environment that serves the needs of women by respecting, protecting and promoting their human rights online. With regard to new and emerging data-driven technologies, there is now a critical window of opportunity to ensure that these technologies are human rights compliant and do not replicate or exacerbate existing patterns of discrimination against women.

Need for a human rights-based approach to bridging the gender digital divide

47. States and business enterprises should ensure that the development and deployment of ICTs, including new data-driven technologies, is guided and regulated by international human rights law, including principles of gender equality, in order to facilitate the realization of human rights for women and avoid any adverse human rights impacts, intentional or unintentional. The treatment and use of ICTs must fully reflect the principle that the same rights that people have offline must also be protected online. Further research and gender analysis is needed concerning the impacts of big data-driven technologies on women's human rights. Particular attention should be paid to the risk of an emerging data gender gap and potential data bias.

48. States and business enterprises should adopt proactive measures to ensure women's equal and meaningful participation online, including by addressing the underrepresentation of women in science, technology and engineering sectors, particularly in leadership positions.

49. Business enterprises in the ICT sector should embed gender equality and diversity as core values across organizational and employment policies.

50. Civil society organizations should play an active role in educating and supporting women in accessing, exercising and achieving their human rights online.

Access to information and communications technology and the necessary infrastructure

51. States should apply a comprehensive human rights-based approach in providing and expanding access to ICTs. They should adopt and implement ICT

[46] See Asli Demirguc-Kunt and others, "The Global Findex Database 2014: measuring financial inclusion around the world", World Bank Policy Research Working Paper No. 7255 (2015), p. 15.

[47] The Secretary-General's high-level panel on women's economic empowerment has called for law, policies and regulations to support digital inclusion while addressing safety, privacy and data protection concerns (see *Leave No One Behind: A Call to Action for Gender Equality and Women's Economic Empowerment* (2016), p. 69).

policies and strategies that include specific measures to gender considerations and address access to, affordability of and participation in ICTs for all women. Such policies should be developed in consultation with all sectors of society, including business enterprises and civil society, in particular women's organizations. ICT policies should also be linked to existing gender and development policies.

50. States should include ICT literacy skills in educational curricula for girls, and support similar learning modules outside of schools.

52. At the international level, States, in particular developed States, should honour their commitment, expressed, inter alia, in the Sustainable Development Goals, to facilitate technology transfer to developing States, and integrate programmes to facilitate women's access to ICTs in their development and assistance policies.

53. States should collect, analyse and track sex- and gender-disaggregated data on ICT access and usage in order to reach a better understanding of how digital inclusion can be achieved and how to develop informed policies.

54. States must ensure equitable access to online information and public services, taking into consideration the diversity of Internet users, as well as the ways people use the Internet. They should provide public access to ICT facilities for women and improve relevant and local online content. In view of current limitations to digital access, States should also make available alternative offline modes of access to public information and services.

55. Business enterprises should innovate to reduce the cost of ICT devices and services. They should consult and engage with women from diverse backgrounds, and include women in ICT design, development and production processes to improve the relevance of ICT services, content and applications.

56. Civil society participation, in particular that of women's organizations, should be ensured in national and international ICT policymaking processes. They should be actively involved in the process of developing ICT content relevant to women.

Combating online violence against women

57. A multi-pronged approach to combating online violence against women is required, including education and media campaigns, and working with all relevant parties. Online violence against women must be dealt with in the broader context of offline gender discrimination and violence.

58. Any measures to eliminate online violence against women must comply with international human rights law, including the criteria for permissible restrictions to freedom of expression provided under article 19 (3) of the International Covenant on Civil and Political Rights.

59. States and business enterprises should act to prevent and combat online violence against women. They should collect comprehensive data on the extent and nature of online violence against women and conduct further research to understand and address its underlying causes and how best to combat it. Civil society should monitor this data collection to ensure it is done in an effective and gender-sensitive manner.

60. States should enact adequate legislative measures and ensure appropriate responses to address the phenomenon of violence against women online, including through investigation of and action against perpetrators, the provision of redress and reparations to victims, and training on the application of international human rights norms and standards for law enforcement and the judiciary.

61. When involved in content moderation, business enterprises, including Internet intermediaries, should put in place clear, transparent and proportionate procedures, respecting human rights, in particular women's rights, and the rights to privacy and to freedom of opinion and expression. Relevant staff, both female and male, should be trained accordingly. Business enterprises should ensure that information about their terms of service and how these are enforced is adequate, understandable and easily available to all users. They should provide information about best practices for online

safety, and consider and establish specific procedures to enable users to report concerns, abuse and illegal content.

62. Civil society should play a role in improving digital literacy and in increasing awareness of the threats that prevent women from accessing and using ICTs and how these can be addressed and reduced.